

ISRAEL HIGH-TECH REPORT

A MONTHLY REPORT COVERING NEWS AND INVESTMENT OPPORTUNITIES

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UNFAIR TO FAIR TRADE

Stop doing business with Israel is being said by Arab countries to Israel's existing and potential trading partners. Israelis readily understand America's call for free trade.

The American position is that goods and services should flow across the borders of nations based on price and value competitiveness. However, there are many objective obstacles to the practice of free trade. One of these is the subsidizing of trade. It is viewed as being inherently unfair and a basis for the imposition of retaliatory trade restrictions. Free trade is more easily preached than practiced. Two years ago American producers discovered that their market was being "flooded" with Japanese goods priced at below cost. The United States retaliated by shutting its doors to certain Japanese electronics imports. Recently European policymakers closed Europe to American beef raised with human growth hormone.

These are just a few examples of situations which mitigate against free trade. Yet in spite of problematic recent statistics indicate that 1988 saw a great upsurge in international trade. The movement of goods across national boundaries is not always smooth but is a workable proposition.

Israel, short of minerals or other natural resources, is developing an export economy. It is based on the strategic utilization of its human resources. The formation of industries which produce technologically based products is encouraged. The great debate in Israel is not whether this represents a correct strategy but whether it is being implemented properly. The smallness of the Israeli marketplace and its population has not stopped Israel, at one time or another from developing

its own combat warplane. From a personnel or technological point of view building an airplane is a doable project, but economically unsound. Israel does not try to compete with the industrial powerhouses of Japan including automobile producers such as Mitsubishi and Subaru.

These two car manufacturers have captured a major segment of the Israeli automobile market. Japan has become Israel's third largest trading partner. However only a few Israeli companies have entered into joint ventures with their Japanese counterparts. Moreover, while in the Middle East the Japanese use their newly acquired financial wealth to invest in real estate, industry and other projects. They steadfastly refuse to invest in Israel. The Japanese marketplace could easily absorb many Israeli products, especially those that are based on advanced Israeli technologies.

Israel's exports to Japan are nearly totally visible. They are listed Government statistics. However, Israeli imports from Japan are much greater than any official statistics would indicate.

To avoid what the Japanese view as political embarrassment Japanese companies sell Israel through

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European trading companies and distributors.

These goods appear on import bills of lading but do not indicate their true country of origin. At the current rate of growth in imports it will not take too many years before Israel becomes economically dependent on Japanese products whether exported to Israel directly or indirectly. Some observers doubt there is little likelihood that Israel's current high rate of growth of exports to Japan is sustainable. Reasonable grounds exist that Israel will not acquiesce to being a target export target country. Free trade with Japan for Israel is desirable but for the time being it remains a far away goal.

Israeli industries, especially technologically based ones should more strenuously and vocally insist on pursuing a policy of free and equitable trade, not only with Japan but with other trade partners, as well.

The Government should be encouraged to enter into an open debate with Israel's trading partners. Only by eliminating those barriers which are hindering Israel's will the country's overall economic progress be improved.

ISRAEL-EGYPT JOINT STUDY OF MEDICINAL DESERT PLANTS:

Nomadic Bedouin tribes have long used the medicines derived from nature in the desert; now scientists are determining which of them actually work.

A joint Israel-Egypt study of the medicinal qualities of desert plants is part of the ongoing research at Israel's Volcani Agriculture Center. The current study, under the auspices of the U.S.-funded AID program, has yielded some interesting discoveries as well as keeping lines of communication open between Israeli and Egyptian scientific communities. The program concentrates on plants which lower blood sugar. They report finding dietetic plants which actually lower the body's rate of metabolism. The researchers are currently trying to eliminate the toxicity present in such plants.

NUCLEAR POWER ACCIDENT BOOSTS MUSHROOMS!

Exotic mushrooms for the international gourmet-food industry are being biotechnically produced by Galil Technological Meda, a kibbutz industry. The nuclear power plant accident at Chernobyl, drastically reduced the supply of wild mushrooms from north-eastern Europe, GTM became aware of the mushroom market potential.

They devised a system of growing mushrooms in Israel, not in the sun but in a cooker, feeding on yeast and a chemical mixture. Initial results are promising. A line of these products will include long, noodle-style and pancake-shaped forms of mushrooms. The new products have been received in Europe with interest. According to Moshe Sela, GTM's marketing manager, the company is tentatively considering an expansion of its market.

IAI AND LOCKHEED SIGN ON MISSILE DEVELOPMENT

The American Lockheed and Israel Aircraft Industries (IAI) have signed a \$150 million contract for joint development of the Arrow Missile, a tactical missile developed by the IAI's Electronics Division. The contract signing follows an agreement in principle initialled with the U.S. Department of Defence in July 1988. The missile according to IAI Electronics Division manager Moshe Ortes, is already being flight tested. Lockheed Corporation Vice President Raymond Capio expressed satisfaction with the missile describing it as a fitting answer to ballistic missile threats in the world today.

LUZ INTRODUCES NEW TECHNOLOGY:

JERUSALEM: Luz Industries has introduced a new production line at its Jerusalem facilities, which makes use of a new high-tech process called "sputtering" to coat the heat collection pipe, a key element of the Luz solar thermal technology. The new coating process takes place in a vacuum chamber. Luz's partner in the development of the new sputtering machine for the selective coating of the heat collection pipe, is Vac-Tec Systems, Inc., a U.S. firm in

Boulder, Colorado.

The purpose of the special selective coating on the Luz heat collection pipe is to increase the absorptivity of solar radiation, and to help retain the collected energy as it travels through the system to the heat exchanger. The development of sputtered coating technology enabled Luz to proceed with the development of the third generation solar collector, which raises system temperatures to 400 degrees centigrade.

Luz notes that its new fully-automated sputtering line is the only machine of its kind in the world, applying recent developments in micro-electronics sputtering to much larger and rounded surfaces.

New Weizmann Institute President Attacks Government

Professor Haim Harari, the new dynamic president of the WI at his first meeting with the Israeli Friends of the WI strongly criticized the Israeli Government's flagging support for the development of science. He stated that Both Britain and Israel by cutting budgetary allocations are undermining the growth of science in their respective countries. And that cuts in Governmental support for basic science development are coming in the face of escalating expenses. these heads of Israel's institutes of higher learning has in the past year expressed similar views.

In a related development the Weizmann Institute's seeking to become more self sufficient by commercialization of applied scientific efforts. The Institute's Biological Service Department has entered into an agreement with Mono-Yeda and established a new laboratory to increase production of monoclonal antibodies.

Monoclonal antibodies (MABS) are ultra-pure proteins that recognize and bond specifically to natural materials making them ideal for the detection, isolation and purification of various biochemicals. They are derived by fusing antibody-producing white blood cells with rapidly dividing tumour cells. The resulting hybrid cells which inherit characteristics of both parents can synthesize virtually unlimited

amounts of specific antibodies. The technique for synthesizing them was developed in the mid 1970s and was introduced in Israel by Wwizmann Institute Prof. Zelig Eshbar, of the Chemical Immunology Department. The increasing demand of researchers for monoclonal antibodies and Yeda's interest in promoting applied research led to the formation of the Mono-Yeda Monoclonal Antibodies Laboratory. One are being pursued is the determination whether MABS could provide effective and safe drug delivery systems that would locate and destroy tumors without harming the surrounding healthy tissues.

GOVERNMENT BACKS INSTITUTES OF HIGHER LEARNING R&D INTERFACE:

The Chief Scientist of the Ministry of Industry and Trade, Dr. Y. Ehrlich has announced a new joint cooperation agreement between his office and the research departments of the various universities. The universities will be called upon to set up an Industry Research Center to promote and encourage product directed basic research. The centers will be funded in part by the Chief Scientist's Office. The cooperative effort marks the first time that university researchers have agreed to enter into joint projects with Ministry officials. The first research center will be established in the Haifa Technion and will concentrate on intelligent systems in picture clarification and artificial intelligence applications. A budget of \$400,000 has been allocated for the Technion operation. Members of Israel's hi-tech industry that have expressed interest in joining the program include. Scitex, Tadiran, Clal Electronics and Israel Aircraft Industries.

GAMBIT-A START UP

Gambit Ltd was founded in April 1988 with the objective of developing and marketing innovative data communication products for the IBM 3270 environment. Its first product is, the 3000 Coaxplitter series, It offers a solution for users who need to increase the number of terminals. It allows the user to connect five terminals where previously only one terminal was connected. This solution is both efficient and cost effective

Israel High Tech Shares Traded in the United States
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Selected earnings summaries for the quarter ended December 30, 1988. Price quotations are from the 15th of the month and the change relates to the corresponding quotation a month ago.

<u>Company</u>	<u>Revs</u> <u>(in mil.)</u>	<u>Net Income</u> <u>(in thou.)</u>	<u>Share</u> <u>Price Change</u>
<u>BIO-TECH GENERAL</u>			
Biological products for health care	- - -	- - -	2.50 +0.50
<u>BTGC OTC</u>			
<u>ELBIT COMPUTERS *</u>	158,385	10,663	7.38 +1.50
Defense electronics			
<u>ELBTF OTC</u>			
<u>ECI TELECOM</u>	12,880	1,069	6.88 +0.88
Telecommunications			
<u>ECILF OTC</u>			
<u>ELRON ELECTRON</u>	- - -	- - -	4.75 +1.13
Invests in high-tech			
<u>ELRNF OTC</u>			
<u>ELSCINT</u>	- - -	- - -	1.25 -0.13
Medical imaging			
<u>ELT NYSE</u>			
<u>FIBRONICS</u>	10,787	704	4.88 +0.13
Fiberoptics			
<u>FBRX OTC</u>			
<u>INTERPHARM LAB.</u>	- - -	- - -	3.50 +0.50
Biological products for			
<u>IPLLF OTC</u>			
<u>LASER INDUSTRIES</u>	- - -	- - -	3.75 -0.13
Medical surgical lasers			
<u>LAS ASE</u>			
<u>OPTROTECH*</u>	61,836	3,090	5.63 +0.63
Electro-optical systems			
<u>OPTKF OTC</u>			
<u>SCITEX*</u>	192,108	14,829	9.60 +0.75
Computer graphics			
<u>SCIXF OTC</u>			
<u>IIS INTELL.</u>	4,718	955	5.25 +0.60
Computer peripherals			
<u>IISLF OTC</u>			
<u>ARYT OPTRONICS</u>			
Optical lenses	2,840	(82)	1.63 - - -

* yr.ending 12/30/88

ISRAELI COMPANIES ON WALL STREET:**Devaluation Accounting Hits 1988 Results**

The devaluation of the Israeli shekel in the last week of calendar year 1988 has hurt profits for the fourth quarter of that year. Israel's Institute of Accounting has declared that the official exchange rate for end of the year accounts was to be IS 1.81. Firms like Teva Pharmaceuticals approximately 60% being in the local market saw profits lowered as exchange rate differentials cut into profits.

Laser Industries Prospects Improve

Israel's premier medical laser company is still hurting from losses created by inventory problems in the United States, the company's major marketing area. Distributors problems have been solved and shipments are beginning to show signs of improvement. Part of management's efforts to correct last year's dismal performance includes a management shakeup and a stringent cost cutting program including layoffs. These efforts may translate themselves to a vastly improved performance which should return the company to profitability by the second quarter of calendar year 1989.

Aryt Optronics Streamlining

Excessive costs in maintaining unnecessary and unprofitable marketing offices outside of Israel have resulted in Aryt's big loss in the last quarter of 1988. Aryt continues to sit on a goldmine nestegg from its public offering of several years ago. Its overly conservative use of the publicly raised funds mixed with imprudent management decisions, leading to nonperforming marketing expenses, put its business future under a question mark.

Since the time shortly after its public issue the price of the company's publicly traded shares have sunk to its current low. The best solution for the company would be the securing of some major orders for its basic product line.

Fibronics Turns an Important Corner

In what appears as a strategic and

pivotal turnaround Fibronics recorded \$10.8 million in sales for the fourth quarter of 1988. It earned \$ 704,000 for that period net earnings for the whole calendar year reached \$901,000 as compared with a loss of \$2.9 million a year earlier. Fibronics sales reached an all-time annual high of \$40.5 million. The results reflect John L. Hale's, FBRX's new president appears to be succeeding in implementing a cost reduction program. Fibroinix continues to provide a total system capability for integrated on-premises fiberoptic networks. Though an American registered company Fibronics began its operations 11 years ago in Israel where its first fiberoptic cable production lines were established. **Elbit Computers Opens Washington Sales Office**

As US Defense industry orders become more important to the development of the Haifa based Elbit Computers, the company has announced the opening of a marketing office in Washington. The need for an enhanced responsiveness to clients' needs was cited as the reason for the move. **Scitex Net Income Back to Traditional Levels:**

In the years prior to to 1985, Scitex was able to produce an impressive sales growth and net margins which were at levels of 8% of sales. After three disappointing years the company in 1988 returned to profitability with profits of \$14.8 million on sales of \$ 192 million. Scitex continues to be in synchronization with the market needs; its products find growing acceptance in the fast expanding worldwide graphic arts market

ISRAEL HIGH-TECH REPORT INDEX*

54.75 UP 11.19 %

ISRAEL HIGH-TECH REPORT INDEX is a weighted index made up of the shares of 10 leading high-tech companies.
Base=100 as of 9/30/84

Subcontractor Closure Hits SPI results

The closing down of Israel major rubberizing plant in the middle of 1988 was given as the main cause for SPI's \$447,000 loss in the fourth quarter of 1988.

SPI has not been able to meet delivery schedules for the US Army but has been granted a revision of the delivery schedule. If it adheres to the new delivery times it will not incur contractual penalties. The company's backlog at year's end was the same \$40 million as a year ago. Its inability to increase shipments resulted in disappointing sales of \$13 million for calendar year 1988. SPI specializes in components for suspension systems of military armored vehicles.

Scitex Corporation Ltd. Israel's oldest and best established manufacturer of interactive computer imaging systems for the printing and publishing industries exceeded expectations when it announced its financial results for 1988. Scitex completed the year with sales of \$192 million and net profits of \$14.8 million.

The worldwide graphic arts market continues to be strong and Scitex is well positioned to increase its market share for its smart work stations as well for its well established scanners and laser plotters. Its increasing entry as a vendor of desk top publications products assures the company of growth prospects. Cash flow, a one time major problem, is healthy and positive. Potentially, 1989 could be a pivotal year as Scitex management will be seeking to follow through on the momentum of 1988 results, and the new business opportunities being opened to it by its new shareholder the Mirror Group plc, a member of the Robert Maxwell world wide media group of companies. For Scitex it is a strategic alliance which should prove to be critical to its further growth. The Mirror Group plc, based on Scitex recent share price of just under \$10 can already look back with a measure of satisfaction on a unrealized paper profit of more than \$5 million, on its recently executed \$39 million investment.

Robert Maxwell who has become a relatively frequent visitor to

Israel, is likely to enhance Scitex chances for strategically positioning itself for further growth in sales and profits.

Elbit Computers Ltd. management continues to maintain its capability in overcoming sharply reduced Israel Defense Department spending. Elbit, a major among Israel's defense/electronics companies has announced that in 1988 it had sales of \$158.4 million. It also reported that it had net profits of \$10.7 million. The company's efforts at promoting overseas sales are bearing fruit as more than 60 per cent of all sales were exports. Buyback and related sales continue to be an important component and source of the company's activities. For the first time in its history the backlog order book exceeds \$315 million. **Optrotech Ltd.** has exceeded our high-end of the spectrum projections for \$60 million in sales and profits of \$2.94 million.

Optrotech the Ness Ziona based specialist in computerized electro-optical inspection CAD/CAM/CIM systems for automated production of printed circuit boards. In announcing its operating results the company revealed that 1988 sales of \$61.8 million and net profits of \$3.09 million or \$0.61 per share. At their recently held NEPCON WEST show at Anaheim, Calif. Optrotech unveiled its new computer aided manufacturing program, and it remains to be seen whether buyer interest will be converted into major new sales. At a market price of \$5 a share the Optrotech securities are priced at a price/earnings ratio of just over eight, which is far from being cheap. Yet based on expectations of further growth in sales and profits and assuming a similar p/e ratio well into the end of 1989 Optrotech's market capitalization could easily rise by more than 20 per cent from its current level of \$25.8 million.

IIS Intelligent Information Systems, the Haifa based manufacturer of computer peripheral and communications equipment for IBM and IBM compatible mainframe systems reported for 1988 revenues of \$17.1 million and profits of \$3.5 million. These results are very close to our projections in IHTR November 1988 when we presented a major report on

the company. IIS is well managed and we would expect that in 1989 it will comfortably extend its impressive record of twenty four consecutive quarters of higher sales , on a year to year basis and and on its ten consecutive quarters of higher earnings. At this stage of development, in our view , the company has the ability to respond quickly and even anticipate market trends. IIS is among a select few of Israeli companies on Wall Street to pay investors a dividend, last year \$0.16. Jacob Herbst is planning to increase the payout in 1989. At its current price of \$ 5.25 IIS shares are being quoted at a modest p/e ratio of less than five times 1988 profits and under six times estimated earnings for 1989. IIS is expanding its market position in the U.S. and in Europe and continuous to maintain a strong presence on the Israeli market.

The company should maintain its projections for another year of strong growth in sales and profits. S.P.I. Suspension and Parts Industries Ltd leading component manufacturer of suspension systems of military armored vehicles is at a critical junction as it faces major penalties if it does not conform to its revised delivery schedules part of a a multi-year contract to the United States Army. In 1988 SPI had sales of \$ 13.8 million and a reported loss of \$928,000.. The losses were attributed to increased raw materials costs and the closure of a major sub-contractor. Management reports that for six months in 1988 it had to cease shipments of rubberized road wheels, part of the \$34.5 million contract. SPI and its parent Urdan Industries continue to be troubled by a variety of problems and we view with a measure of scepticism the prospects of an early turnaround in profitability.

RECENT DEVELOPMENTS

U.P.C SOFTWARE IN SPACE
 UniPower Ltd. formerly the R&D arm of CCI (Israel) recently sold a software PACKAGE AND A DESIGN PROGRAM TO THE EUROPEAN SPACE AGENCY (Eurosapce) based in Holland. Basic elements of the software package were originally developed as part of an airborne

computer network program and in conformance with US Air Force specifications. Agriculture Minister Avraham Katz-Oz promotes agricultural R & D The new four year plan for the agricultural sector will focus on increasing research and development funds for the farmer. In the field of agriculture R&D funding has proved to escelate export products at an accelerated rate. Tadiran Expects Profits in 1989 A nearly 10 per cent additional reduction in personnel is expected to reduce expenses in 1989. Tadiran's military equipment plants will be primarily affected. The forecast for 1989 calls for \$ 880 million sales which is nearly five per cent below 1988. Net profits aimed at are \$10 million. Yissum to Raise Funds on Wall Street Healthcare Technologies Ltd. a Yissum Holdings subsidiary, in turn a subsidiary of Istech Industries and Technologies expects to raise \$ 2.5 million, of which \$1.8 million will go to the company. A package of shares and options will be offered to the investing public. Healthcare specializes in public healthcare services, owns 52% of

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 NEWS AND INVESTMENT OPPORTUNITIES

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Savyon Diagnostics of Beersheba, manufactures and marketers of diagnostic kits for sexually transmitted diseases.

The other major holding is a 52% stake in a blood purification company. The development project calls for a budget of \$8-\$10 million. \$500,000 will be allocated from the US financing issue.

Computerized Medical Technology Central Software and Automation has introduced the COMET-Computerized Medical Technology Hospital Information system. It is an integrated totally interactive complex of medical financial and management applications software.

MARON SYSTEM FOR ROAD SAFETY

Professor G. Ben David introduced his system which is an electro-optic device to detect and identify tailgaters. The product was developed with the backing of the Office of the Chief Scientist of the Ministry of Trade and Industry and with the full cooperation of Israel's Police Force and the Road Safety Department of the Ministry of Transport. Driver Safety Systems of Herzliya own the rights to this system.

GOLD EXTRACTION FROM WASTE

Satec an Israel based company currently employing a group of scientists, many of whom are Soviet immigrants, concentrates on developing new proprietary high-tech products. The following is a description of a research and development program related to the extraction of gold from industrial wastes. A pilot plant to demonstrate the underlying technology and commercial viability is being planned. The Jerusalem based company is seeking to enter into cooperative development programs or joint venture agreements to further this process, which is intended to develop a new industry.

Process Description:

An important source of gold and other precious metals is from industrial waste. A key factor in the precious metals recovery industry is the use

of economic methods of extracting rare metals from industrial waste. Such waste materials come typically from the jewelry industry in the form of jewelry "sweeps" and outdated electronic equipment. Worldwide there are thousands of tons of such waste available for processing each year. A new hydrometallurgical method of extracting gold from secondary raw materials has been developed by Satec. The method involves preliminary extraction of non-ferrous metals and iron followed by extraction of gold and other precious metals into solution suitable for electrolysis. :

The SATEC process avoids the use of toxic substances. The chemical processes used there, are not environmental polluting effluents or gaseous matter. Reagents are regenerated making the process cost effective. Tests indicate extraction efficiencies of 90%, higher level than in currently used processes.

ELECTRONICS INDUSTRY FACES CRISIS

Moshe Shamir, chairman of the Electronics and Computer Programming Division of the Israel Industrialists Association, has called upon the government to be more flexible in granting permits to Israeli hi-tech companies wishing to establish subsidiary branches abroad. Shamir, president of Vishay Israel, contends that currency restrictions and related factors make it difficult for Israeli electronic companies to break into the international market. Shamir anticipates a trend towards increased exports due to the severity of the Israeli Defense Ministry budget cuts. He warned of a reduction in local purchasing of up to 80%. Although an increase in the export of goods usually intended for the Ministry of Defense has been reported, conversion of these products for overseas use is time consuming. A number of products are not marketable abroad for security and political reasons.